



Education and Culture DG

Lifelong Learning Programme

MENUET **Mobile E-Novative Use of E-learning Technologies**

Project No.
LLP-LdV/ToI/2008/RO/010

Project Summary

The aim of this EU Leonardo da Vinci project is to develop arts and skills for teaching in the m-Learning era. Comprehensive guidelines that integrate learning drivers with enabling mobile technologies are being prepared in order to provide a logical framework for promoting and coordinating new m-learning practices adapted to the needs of learners and teachers. Relevant didactical concepts and methodologies in the field of mobile learning, computer technologies and applications are being developed to disseminate best practices in the use of ICT in environmental protection for sustainable development, with emphasis on mobile technologies in

ODL, classroom learning and blended learning. The resulting product will constitute an integrated training and decision support tool aimed at providing end-user skills for the management of environment protection.

BACKGROUND

The Lisbon European Council set the European Union the strategic goal of “becoming the most competitive and dynamic knowledge-based economy in the world”. This strategy was confirmed by the Barcelona summit in March 2002, where it was stated that “European education and training systems should become world reference by 2010 and that closer cooperation should be promoted in the area of Vocational Education and Training (VET)”.

The adoption of the "Copenhagen Declaration" by 31 Ministers of Education, the European social partners and the Commission in November 2002 was a direct and concrete follow up to the broader objectives agreed in Lisbon and Barcelona. The Copenhagen Declaration was a significant step forward as it identified a set of specific issues and challenges where increased European cooperation in VET is required and welcomed.

The MENUET Project responded directly to some of the important goals and objectives pointed out in the EU priorities so as to focus attention to the learning needs of teachers and trainers in VET, to promote employability and competitiveness and so

strengthen the European dimension of VET

E-LEARNING TECHNOLOGIES

E-Learning Technologies use interactive multimedia (the simultaneous transmission via computer screens of text, graphics, computer software, animation, video, voice-overs and music in stereo sound, as well as virtual reality worlds). The use of E-Learning Technologies allows users interaction with controlling computer software programmes and may be used effectively in education and training. Sophisticated computer hardware and software are available for the production of high quality flexible training materials and at low cost.

Interactive teaching materials enhance the learning process; are enjoyable; and, using wireless networks, may be used anywhere, at any time and by anyone. An individual has the freedom to learn at one's own pace, to select the appropriate level and to pick times for study, so as to be able to study at work or at home or in travel. The use of this dissemination medium, if prepared carefully and comprehensively can eliminate the need for face-to-face workshops, seminars, conferences, site visits and attendance at technical fairs, saving time, travel and fuels and so also reducing polluting emissions to air.

All the elements involved in the delivery of materials in classroom situations can be incorporated via video and sound. By making the

multimedia package multi-dimensional with help menus and cross-links, the user may interrogate the system, just as questions are asked and answered in a classroom situation. The multimedia instructional package never becomes tired and never retires. Each use is as fresh as the first. An infinite amount of materials and knowledge can be accessed via the Internet.

MOBILE LEARNING

At the time of the EDUET Project, upon which the MENUET TOI Project was based, the sole mobile computing device was the expensive, heavy, hot and awkward TABLET PC.

There has since been a major progression from desktop systems to a proliferation of handheld products for wireless mobile e-learning - Netbooks, the iPhone/iPod, the iPad and its emulators. During the period of the MENUET Project, Touch Phones have improved considerably so that it is now possible for these also to deliver distance E-Learning courses.

Wireless hotspots, few and far between and expensive to use at the time of the EDUET Project, are now ubiquitous and inexpensive to use.

Traditional learning resources have been lectures, guidance notes, books and journals with learning support via seminars, group exercises and laboratory work. Assessment has been accomplished using coursework and formal examinations.

Many students moved from taking paper notes of lectures to typing notes into their Laptop PCs

With the increasingly sophisticated functionalities of E-technologies, there is the capability of increased interactivity in the learning process. There is a pedagogical revolution involving an evolving change of role of the lecturer from that of imparting information via classroom delivery to a facilitator of dialogue via electronic communication. Thus new pedagogies that support critical and original thinking as learning outcomes, favouring knowledge construction above knowledge acquisition, are being developed. Emphasis is shifting in the teaching approach from a didactic model to a dialogic model, learning through engagement and collaboration rather than through the acquisition and regurgitation of information imparted from the traditional lecturer.

ICT-based learning resources include computer-aided learning and interactive simulations from CD-ROMs/DVDs, intranet or internet-based resources including bibliographic databases. Learning support can be provided using interactive computer-aided learning and various applications software (e.g. spreadsheets, statistical or textual analysis, CAD, 3-D modelling, multimedia, etc). Assessments can be carried out by computerised intranet or internet-based tests with electronic marking and feedback. There is the possibility of structured discussions on internet forums and other collaborative activities, assignments and projects

among peers, lecturers and students.

The MENUET Project envisaged that the future of teaching would rapidly vacate the classroom and become heavily involved in distance-learning using Multimedia/Internet Courseware, CD-ROMs/DVDs, memory storage devices, the internet and intranets incorporating video-conferencing and computer-assisted learning - anywhere and anytime on-demand. This use of the E-Learning Technologies throughout educational systems is already bringing about a major revolution in teaching world-wide and there are opportunities for the development of huge revenue streams.

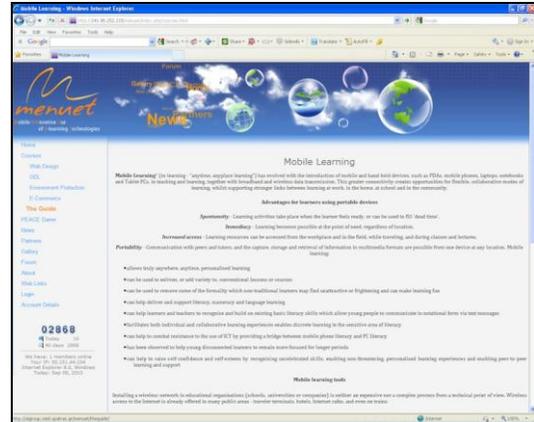
It is now possible to transmit files throughout the internet containing all the elements of multimedia: video, animation, text, graphics, stereo sound and computer software. Presentations, containing interactive diagrams, pictures, animations, videos and voice-overs may be viewed anywhere in the world at any time. Multimedia lecture material may be produced and presented exactly as in a lecture room situation, but viewed by millions. Broadband telephony, internet, email and videoconferencing can be used for two-way communication between "lecturers" and students

Desktop PCs confine the user to sit at a stationary workplace. Mobile PCs free the user from this constraint as they may be carried anywhere. Until recently, Laptop PCs had to be connected to a telephone line to access the internet, reintroducing the constraint of the

fixed workplace when on-line. Telephone sockets were introduced at university locations, including libraries and recently in many classrooms. Hotels increasingly installed internet connections in their guest rooms and some trainlines had wired internet connections on their trains. These dialup connection facilities were replaced with broadband capabilities. In very recent years, wireless connections have become available, freeing the user from having to physically connect to a telephone system and therefore becoming totally mobile. Inexpensive wireless adapters to be plugged into the Universal Serial Bus (USB) port of a Mobile PC are now commonplace. University campuses are now responding fast and wireless networks are being installed at airports, hotels and other locations.

The revolution from the classroom lecturer's "talk and chalk" to independent Mobile E-Learning required a completely new and different didactical approach. Education became "Edutainment" and the computer became a theatre as the student had to be enveigled to become engrossed in the learning materials without the presence and motivation of the lecturer. Young people are infatuated with music, games and mobile phones. These factors have therefore to be fully utilised for successful Mobile Pedagogical Applications and so were developed as such in the MENUET Project.

THE VIRTUAL MOBILE LEARNING ENVIRONMENT



One of the main objectives of the MENUET project was to create a new learning environment with basic and practical courses for trainers, trainees and practical pedagogical guidelines for teachers using ICT, especially in networked E- and M-learning environments. This objective was particularly aptly prophetic as the number of workers and students in mobile situations are increasing exponentially. It has been estimated that the number of mobile workers will total 1.3 billion worldwide, 35 percent of the workforce, by 2013!

The specific aims of MENUET were targeted on the design, development, testing, evaluation and dissemination of new innovative methods, on-line LMS tools and rich content multimedia (E-Content) used for training teachers, VET trainers and students in three major sectors (ICT, environmental management and business).

The Multimedia Centre and the online pedagogical community is at the Project Website at

<http://menuet.etcenter.ro/>

A “PEACE” Game: EcoSquads

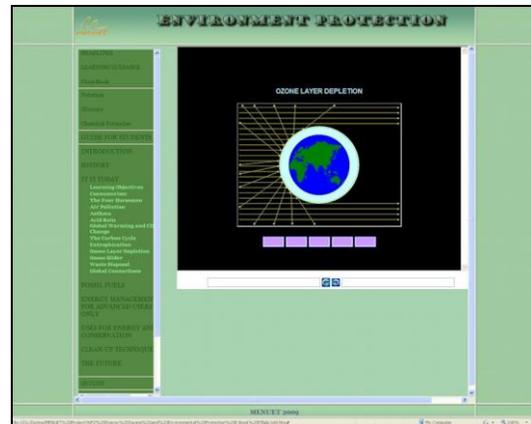
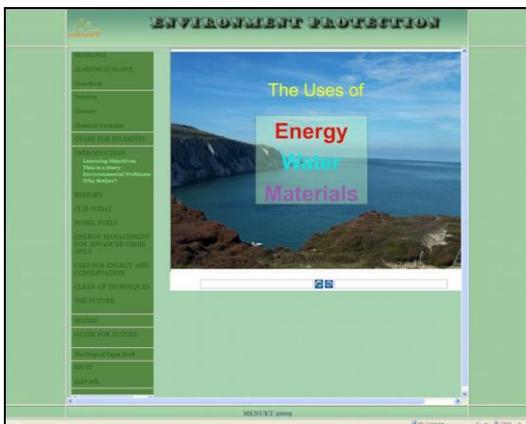


and the Virtual Collaborative Forum.

NEW TOOLS

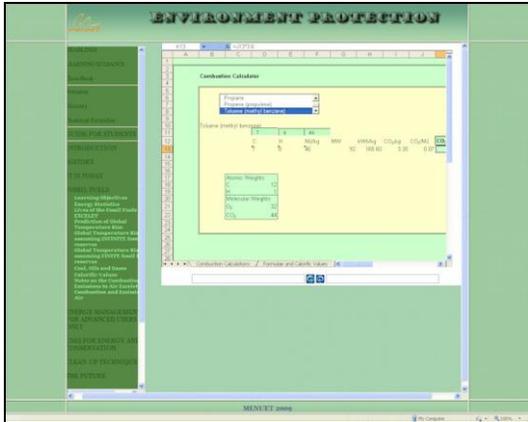
To assist the transition from classroom “Talk and Chalk” to independent Mobile E-Learning, the New Tools developed and intrinsic to the resources provided at the **Virtual Learning Mobile Environment** include:

- The use of multimedia (music, sound effects, voiceovers, videos and animations) in interactive presentations



- The use of interactive software and spreadsheets containing ActiveX controls (scrollbars, dropdown selection boxes, etc.) for examinations of system behaviour (i.e. the effects of independent system variables on the overall energy consumptions of buildings, combustion efficiencies and CO₂ release in carbon neutral approach analyses)

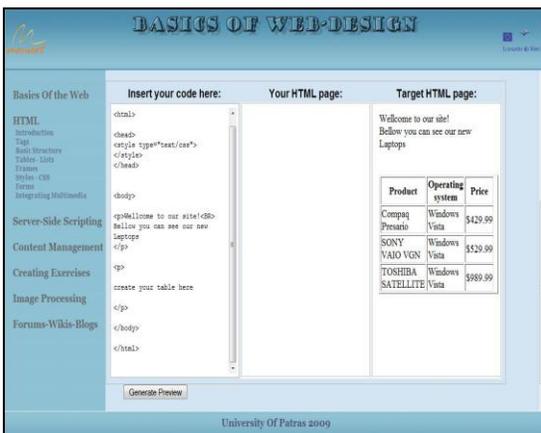
- Innovative software, sliders and popups



- Quizzes, Games, Automatic Scoring, Feedback and Revision



- Tools for trial and error efforts implementation and visualization.

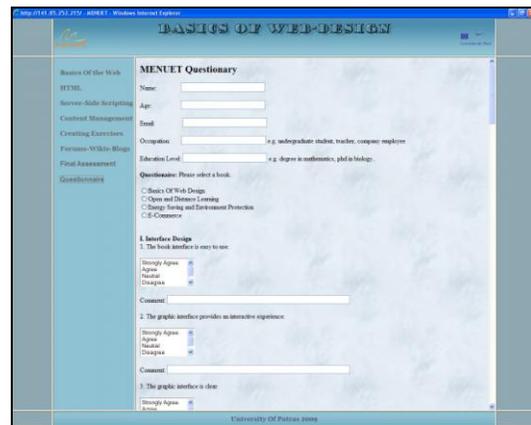


- Storage and retrieval of data entered in interactive web forms

- The use of Web2.0-based communication and collaboration technologies such as discussion forums, chat, e-mail, blog, Wikipedia publishing systems, IP-based audio, videoconferencing and interactive TV

TESTS AND FEEDBACK

Included within the courses are tests, quizzes and games to measure the effectivenesses of the training sessions. External evaluation tests are also provided for each course



Test questionnaires are provided to measure user satisfactions, feedback from the trainees and suggestions for improvement in the following areas:

- Interface Design
- Medium of delivery
- Functionality
- Overall impression
- General information

The user satisfaction level is set in 5 grades.

These Interactive Questionnaires can be found at the project web-site at <http://menuet.etcenter.ro/>

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